This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

O I P E JC61 MAR 25 2004 PATENT & TRADEMARK OFFICE

Public Announcement Copy No. 349412

Date of Application: April 2? (illegible), Year 87 (1998)
Case Number: 87206039
Classification: A62B 18/08 349412

Novel (New Type) Device Description

1. Name of Novel Device: Improved Structure of a Gas Mask
2. Creator: Name – HO Tienlu
   Nationality – Republic of China
   Address – No. 21, Chuanshui Lane, Tunghu Village, Taichuan County (Taiwan, Republic of China)
3. Assignee: Name – HO Tienlu
   Nationality – Republic of China
   Address – No. 21, Chuanshui Lane, Tunghu Village, Taichung County (Taiwan, Republic of China)
   Representative
4. Chinese Abstract of Creation (Name of Created Device: Improved Structure of a Gas Mask)

The improved structure of a gas mask, which primarily consists of: a rear mask body, a battery socket, and a front mask body. Structurally, the mask is very light and convenient to use. Because the front mask body is equipped with a motor and a fan for drawing in air directly, and sent to the rear mask body for respiration by the user; resulting in very little loss of the efficiency for the motor, therefore, increase the utilization efficiency of the motor and the fan; and the device can be directly worn over the face, causing no restriction on the activity of other parts of the body.

5. Description of Created Device:

[Field of Technology]

The created device concerns an improved structure of a gas mask, especially a mask which is very convenient to use, and has a good utilization efficiency while casing no restriction on the movement of the body.

[Previous Technology (Prior Arts)]

Current gas masks, besides military applications, generally are used for scheduled pesticide application by farmers.

Shown in Figure 6 is a current gas mask that is used for pesticide application; the mask consists of a helmet (not shown), and a respiration mask 81 covering the nose and mouth of user 9; the respiration mask 81 is connected to one end of a air hose 82, while the other end of the air hose 82 is connected to a filtering device 8. The filtering device 8 is consisting of a filter element and a fan (both are not shown); air is being drawn in by the fan of filtering device 8, passing through filtering element and the air hose 82 to reach the respiration mask 81, supplying clean and cool air to the user.

However, such gas mask suffers the following disadvantages in actual practice:

1. It is not very convenient: The filtering device 8 of this type of gas mask is being carried around the waist; it is necessary for the air to pass through an air hose to reach the respiration mask 81. However, the distance from the waist to the nose and mouth is relatively lengthy, in order for the user 9 to move his head 91 and body 92 conveniently, additional length is added to the air hose, which is restricting the movement of the user when he is working in a tighter space, causing certain degree of inconvenience; especially when he is spraying pesticides, the user must also carry the spraying equipments. Therefore, it is quite inconvenient to use.

2. There is a substantial loss of pressure through the air hose: Because the air hose 82 is twisting and turning, there is a substantial loss of pressure in the air flow; therefore, the efficiency of the air supply fan is not very high; resulting in not only a substantial loss in its delivery efficiency, but also a large waste in energy resource.

3. Equipment is quite cumbersome: There are many, many commonly known component elements; as mentioned above, they include elements such as a helmet, the respiration mask 81, an air hose 82, and a filtering device 8, etc .. It is quite cumbersome.

4. Inconvenient in charging: The commonly known air hose 82 is quite lengthy, therefore, it is necessary for the fan to equip with a relatively high power motor in order to deliver adequate pressure for the air supply; therefore, it is usually using a rechargeable battery (not shown). However, in general agricultural applications, because the farm land area owned by the farmer is rather small, the usage is limiting to only a few times (scheduled seasonal applications) each year; and for each application, the spraying time is approximately less than 3 hours; therefore, using a rechargeable storage battery to supply power is not only cumbersome, but also unnecessary.

[Objectives and Effects]

The primary objective of this created device is to resolved the issues mentioned above, thus provide a gas mask with an improved structure, by equipping a motor and a fan in the front mask body, to directly draw in air supply and deliver to the rear mask body for breathing by the user; which is resulting in a minimum loss in the power of the motor, increasing the utilization efficiency of the motor and the fan; and since it can be worn directly over the facial area, it is not restricting the movement of other parts of the body.

[Description of Technical Contents]

This creation is to provide an improved structure for a gas mask, which includes:

A rear mask body. The rear mask body consists of a backward facing opening; the external sleeve of the opening is equipped with an annular sealing cushion, which is made of a soft rubber; the rear mask body also has an air inlet port; and the bottom side of the said body has an exhaust port; the back of the intake port and the bottom of the exhaust port are each equipped with a check membrane, respectively;

A battery socket, which is located at the bottom of the rear mask body; an exhaust air space is formed between the battery socket and the rear mask body; there is an exhaust air port located on the back bottom edge of the battery socket; and there is a mounting space on the bottom of the battery

socket, allowing the placement of multiple batteries in the said mounting space; there is a bottom cover on the opening of the said mounting space;

A front mask body; which is attached at the front end of the rear mask body and the battery socket; there is a circular attachment seat at the front end of the said front mask body; there is a circular filtering device in front of the said attachment seat; the said filtering device is mounted on the attachment seat by screwing the cover body onto the front mask; there is a breathing hole in the said attachment seat; and there is a battery powered motor in the back side bottom edge of the said front mask body; the front end of the motor is connected to a fan, the fan is located just inside the breathing hole.

It is not difficult to further understand, in depth, the objectives mentioned above and other objectives as well as the advantages of this creation, from the detailed description of the following selected application example and the attached drawings.

Of course, although certain components, or arrangement of the components of this creation may be different, yet the selected application example, is being explained in detail in this description; and the structure is shown in the attached drawings.

[Brief Explanation of the Figures]

The novel creation will be described in detail with the following application example and corresponding drawings.

Figure 1 is a three dimensional drawing of this creation.

Figure 2 is a cross-sectional drawing of the II – II plane in Figure 1.

Figure 3 is a sketch showing the device of this creation is being worn by an user.

Figure 4 is a sketch showing the user is breathing in air.

Figure 5 is a sketch showing the user is breathing out air.

Figure 6 is a sketch showing the user is wearing a conventional gas mask.

[Explanation of Figuring Numbers]

(Conventional Mask)

Filtering device	8	Respiration mask	81	Air hose	82
User	9	Head of user	91	Body of user	92

(Mask of this Creation)

Rear mask body	1	Opening	11	Sealing cushion	12
Air intake port	13	Air exhaust port	14	Check membrane	15
Battery socket	2	Exhaust space	14	Exhaust hole	22
Placement space	2	Batteries	23	Bottom cover	25
Front mask body	3	Attachment seat	3 1	Cover body	32
Breathing hole	33	Motor	34	Fan	35
Lugs	36	Tie string	37	Filter element	4
User	5	Nose	51	Mouth	52
Face	53	Head	54		

[Detailed Description of Application Example]

Please refer to Figures 1 through 5; showing in these figures are the structure of this selected application example of this creation, which is used for explanation only, the patent application is not restricted to such structure.

The creation is consisting of:

A rear mask body 1; the said rear mask consists of a backward facing opening 11, the external sleeve of the said opening 11 has an annular sealing cushion 12; the said sealing cushion 12 is made of a soft rubber; the front side of the said rear mask body 1 has an air intake port 13, while the bottom side of the said rear body has an air exhaust port 14; the back of the intake port and the bottom of the exhaust port are each equipped with a check membrane 15, respectively.

A battery socket 2, which is located on the bottom of the rear mask body; an air exhaust space 21 is form between the said battery socket 2 and the rear mask body; there is an air exhaust hole 22 at the bottom back edge of the battery socket 2; there is an upward facing hollow placement space 23 at the bottom of the said battery socket 2; the said placement space 23 allows the placement of three commonly used ordinary batteries 24; and there is a bottom cover 25 for the opening of the said placement space 23.

A front mask body 3, which is attached at the front end of the rear mask body and the battery socket 2; there is a circular attachment seat 31 at the front end of the said front mask body 3; there is a circular filtering device 4 in front of the said attachment seat 31; the said filtering device 4 is mounted on the attachment seat by screwing the annular cover body 32 onto the front mask body 3; there is a breathing hole 33 in the said anchoring seat 31; there is battery 24 powered motor 34 in the back side bottom edge of the said front mask body 3; the front end of the motor 34 is connected to a fan 35, the fan 35 is located just inside the breathing hole 33. In addition, there are lugs 36 on the left and right sides of the front mask body 3, respectively; the two lugs 36 are used to connect a tie string 37.

Referring to Figures 3 through 5, when using the device, three batteries 24 are placed in the placement space 23 of the battery socket 23; at the same time, a new filter element 4 is placed in the attachment seat 31 and the cover body 32; the user 5 then wearing the device of this creation to cover the nose 51 and mouth 52 area, allowing the sealing cushion 12 to tightly cling to the face 53 with no leak; the tie string 37 is tie together tightly over the head 54; the power is then switched on (not shown in the drawing), the motor 35 starts to run, turning the fan 34 and start to draw in air; air is passing and filtering through the filter element, providing fresh clean air containing no contamination and toxic substance; such fresh clean air is flowing into the front mask body 3; when the user 5 is breathing in the air, the amount of air inside the rear mask body 1 is reduced, resulting in a drop of internal pressure, the check membrane 15 of the air intake port 13 is opened by the pressure of the fresh clean air, allowing fresh clean air to enter the rear mask body 1 through air intake port 13. When the user is breathing out exhaust air, the amount of air inside the rear mask body 1 increases, thus increasing the internal pressure, closing the check membrane 15 of the said air intake port 13, while the check membrane 15 of the air exhaust port 14 is being opened, exhaust air is discharged through exhaust hole 22 of the air exhaust port 14.

It can be seen from the above description, the volume of this created device is quite small. It can be wear directly over the face 53. There is no unnecessary extra component to restrict the

movement of other parts of the body; which is much handier and more convenient.

Especially, the motor 34 and the fan 35 are directly mounted inside the front mask body 3, the air drawn in may enter directly into the rear mask body 1 for the user 5 to breathe, offering not too large a resistance in the air passage, the effectiveness of delivery of the fan 35 is very good; therefore, there is very little loss in the efficiencies of the motor 34 and the fan 35.

The application example described above is used to illustrate this creation, but not to restrict this creation; any change in numerical values or replacement of similar components shall be covered in the scope of this creation.

The detailed description above will allow those who are familiar in the art of the field to clearly understand that this creation is indeed capable of reaching the objectives mentioned above, therefore, meeting the requirements of the patent laws, thereupon, we are submitting an application for a novel creation.

6. Patent Claims:

1. An improved structure for a gas mask, which consists of:

A rear mask body. The rear mask body consists of a backward facing opening; the external sleeve of the opening is equipped with an annular sealing cushion, which is made of a soft rubber; the rear mask body also has an air inlet port; and the bottom side of the said body has an exhaust port; the back of the intake port and the bottom of the exhaust port are each equipped with a check membrane, respectively;

A battery socket, which is located at the bottom of the rear mask body; an exhaust air space is formed between the battery socket and the rear mask body; there is an exhaust air port located at the back bottom edge of the battery socket; there is a mounting space on the bottom of the battery socket, allowing the placement of multiple batteries in the said mounting space; there is a bottom cover on the opening of the said mounting space;

A front mask body; which is attached at the front end of the rear mask body and the battery socket; there is a circular attachment seat at the front end of the said front mask body; there is a circular filtering device in front of the said attachment seat; the said filtering device is mounted on the attachment seat by screwing the cover body onto the front mask; there is a breathing hole in the said attachment seat; and there is a battery powered motor in the back side bottom edge of the said front mask body; the front end of the motor is connected to a fan, the fan is located just inside the breathing hole.

2. As the improved structure for a gas mask as described in Claim 1, in which there is a lug on each of the left and right side of the front mask body, respectively. The two said lugs are used for connecting to a tie string.

(Attached figures designated Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, and Figure 6, respectively)

公告本

349412

申請日期	87. 4. [illegible]
案號	87206039
類別	A61B 18/[illegible]

A4
C4

349412

（以上各欄由本局填註）

發明 新型 專利說明書

一、發明 新型 名稱	中文	防毒面具之改良結構
	英文	
二、發明 創作 人	姓名	何天漾
	國籍	中華民國
	住、居所	台中縣大里市東湖里泉水巷21號
三、申請人	姓名（名稱）	何天漾
	國籍	中華民國
	住、居所（事務所）	台中縣大里市東湖里泉水巷21號
	代表人姓名	

裝 訂 線

經濟部中央標準局員工消費合作社印製

本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

四、中文創作摘要（創作之名稱：　防毒面具之改良結構　）

一種防毒面具之改良結構，主要包括有：一後罩體、一電池座及一前罩體。在結構上十分輕巧。藉前罩體內設有馬達及風扇，以直接吸引空氣，並送至後罩體供使用者呼吸，不會造成馬達功率損失，增加馬達、風扇之使用效益，而且可直接配帶於臉部，不會妨礙身體之其他部位活動。

英文創作摘要（創作之名稱：　）

（請先閱讀背面之注意事項再填寫本頁各欄）

訂

線

經濟部中央標準局員工消費合作社印製

本紙張尺度適用中國國家標準(CNS)A4規格(210×297公釐)

五、創作說明（ / ）

【技術領域】

本創作係有關一種防毒面具之改良結構，尤指一種同時兼具輕巧、使用效率良好且不妨礙身體活動之防毒面具。

【先前之技術】

按現有之防毒面具，除了軍事上的用途外，平時一般人最常用情況為農人在定期噴灑農藥時。

如第６圖所示係現有農業上應用於噴藥之防毒面具，其係具有一頭盔（圖中未示）及一供使用者９配帶於鼻子、嘴巴之呼吸罩８１，此呼吸罩８１連結一空氣管８２之一端，而此空氣管８２之另一端則連接至一過濾裝置８，此過濾裝置８內具有過濾體及送風機（圖中均未示），藉過濾裝置８之送風機將空氣吸入，並經過過濾體、空氣管８２到呼吸罩８１供使用者吸入乾淨且清涼之空氣。但是，此種防毒面具在實際使用上仍有下述之缺點：

一、使用不便：

此種防毒面具之過濾裝置８係配帶於腰部，所以必需透過空氣管８２方可導引空氣至呼吸罩８１，但是，腰部至鼻子、嘴巴之距離為較長，且為了方便使用者９之頭部９１及身體９２之活動，空氣管８２又必需更長一些，可是在狹窄空間工作時又會阻礙了使用者之活動，較為不方便，特別是在噴灑農藥時，使用者還得攜帶噴灑器具，因此，在使用上極不方便。

二、空氣管之壓力損失大：

（請先閱讀背面之注意事項再填寫本頁）
裝
訂
線
經濟部中央標準局員工消費合作社印製
本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

五、創作說明（之）

由於，該空氣管８２係為彎彎曲曲的狀態，對於空氣之流動造成壓力損失，也使得送風機之效率不高，不但其送風效果大打折扣，亦造成能源之浪費。

三、裝備笨重：

習知之組件繁多，如前所述，包括頭盔、呼吸罩８１、空氣管８２及過濾裝置８等元件，十分笨重。

四、充電不便：

習知之空氣管８２很長，因此必須搭配一功率較大之送風機才能送出足夠壓力之空氣，故，通常是配合一可充電式之蓄電池（圖中未示）。然而，在一般之農業使用上，通常自有之農地面積有限，一年內才使用數次（固定之季節），每次之噴灑時間也大約在３小時以內，故，以蓄電池方式提供電能不僅笨重且無必要。

【目的及功效】

本創作之主要目的，在於解決上述的問題而提供一種防毒面具之改良結構，藉前罩體內設有馬達及風扇，以直接吸引空氣，並送至後罩體供使用者呼吸，不會造成馬達功率損失，增加馬達、風扇之使用效益，而且可直接配帶於臉部，不會妨礙身體之其他部位活動。

【技術內容】

本創作係提供一種防毒面具之改良結構，包括有：

一後罩體，該後罩體具有一向後之開口，該開口之外側套設有一環狀之密封墊，該密封墊係以軟質橡膠所製造而成，該後罩體之前側面具有一進風口，而該後罩體之底

（請先閱讀背面之注意事項再填寫本頁）

裝 訂 線

經濟部中央標準局員工消費合作社印製

本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

五、創作說明（3）

面具有一出風口，該進風口之後側及出風口之底部分別具有一止回瓣；

一電池座，其係設於後罩體之底部，該電池座與後罩體之間形成一排氣空間，該電池座之後側底緣具有排氣口，該電池座之底部具有一容置空間，該容置空間中可放置多數電池，該容置空間之開口處設有一底蓋；

一前罩體，其係固設於後罩體與電池座之前端，該前罩體之前端具有一圓形之固定座，該固定座之前端設有一圓形之過濾體，該過濾體係以一環形之蓋體螺固於固定座，該固定座內具有一通孔，該前罩體後側底緣設有一由電池提供電源之馬達，該馬達之前端連結一風扇，該風扇恰好位於通孔內。

本創作之上述及其他目的與優點，不難從下述所選用實施例之詳細說明與附圖中，獲得深入了解。

當然，本創作在某些另件上，或另件之安排上容許有所不同，但所選用之實施例，則於本說明書中，予以詳細說明，並於附圖中展示其構造。

【圖式簡單說明】

茲以一較佳實施例並配合圖式詳細說明本創作於後：

第1圖係本創作之立體圖

第2圖係第1圖之Ⅱ－Ⅱ剖視圖

第3圖係本創作被使用者配帶時之狀態示意圖

第4圖係本創作於使用者吸氣時之使用狀態示意圖

（請先閱讀背面之注意事項再填寫本頁）

裝 訂

經濟部中央標準局員工消費合作社印製

本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

五、創作說明（4）

第５圖係本創作於使用者呼氣時之使用狀態示意圖

第６圖係習用防毒面具之使用狀態示意圖

【圖號說明】

（習用部份）

過濾裝置８	呼吸管８１	空氣管８２
使用者９	頭部９１	身體９２

（本創作部份）

後罩體１	開口１１	密封墊１２
進風口１３	出風口１４	止回膜１５
電池座２	排氣空間２１	排氣口２２
容置空間２３	電池２４	底蓋２５
前罩體３	固定座３１	蓋體３２
透孔３３	馬達３４	風扇３５
耳部３６	帶子３７	
過濾體４		
使用者５	鼻子５１	嘴巴５２
臉部５３	頭部５４	

【實施例之詳細說明】

請參閱第１至５圖，圖中所示者為本創作所選用之實施例之結構，此僅供說明之用，在專利申請上並不受此種結構之限制。

本創作係包括有：

一後罩體１，該後罩體１具有一向後之開口１１，該開口１１之外側套設有一環狀之密封墊１２，該密封墊１

本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

經濟部中央標準局員工消費合作社印製

（請先閱讀背面之注意事項再填寫本頁）
裝
訂

五、創作說明（5）

係以軟質橡膠所製造而成，該後罩體１之前側面具有一進風口１３，而該後罩體１之底面具有一出風口１４，該進風口１３之後側及出風口１４之底部分別具有一止回瓣１５。

一電池座２，其係設於後罩體１之底部，該電池座２與後罩體１之間形成一排氣空間２１，該電池座２之後側底緣具有排氣口２２，該電池座２之底部具有一向上凹陷之容置空間２３，該容置空間２３中可放置三個一般常用之電池２４，該容置空間２３之開口處設有一底蓋２５。

一前罩體３，其係固設於後罩體１與電池座２之前端，該前罩體３之前端具有一圓形之固定座３１，該固定座３１之前端設有一圓形之過濾體４，該過濾體４係以一環形之蓋體３２螺固於固定座３１，該固定座３１內具有一透孔３３，該前罩體３後側底緣設有一由電池２４提供電源之馬達３４，該馬達３４之前端連結一風扇３５，該風扇３５恰好位於透孔３３內，另外該前罩體３之左、右二側分別具有一耳部３６，該二耳部３６係用以連結一帶子３７。

請參閱第３至５圖，使用時，於電池座２之容置空間２３內置入三個電池２４，並於固定座３１與蓋體３２中置入新的過濾體４，使用者５再將本創作配帶於鼻子５１與嘴巴５２處，使密封墊１２緊貼著臉部５３，不使其產生洩露，並將帶子３７繞過頭部５４緊緊，再打開電源（

（請先閱讀背面之注意事項再填寫本頁）
裝
訂
線
經濟部中央標準局員工消費合作社印製
本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

五、創作說明（6）

圖中未示），該馬達３４即可開始運轉，並帶動風扇３５轉動，風扇３５轉動時即開始抽引空氣，空氣經過過濾體４之過濾，形成沒有雜質、毒物之清新空氣，此等清新空氣流入前罩體３內，使用者５吸氣時，該後罩體１內之空氣減少，且內壓力亦降低，該進風口１３之止回膜１５即被清新空氣之壓力打開，清新空氣即由進風口１３進入後罩體１內。而使用者５於呼出廢氣時，該後罩體１之空氣增加，內壓力亦提高，該進風口１３之止回膜１５被關閉，而出風口１４之止回膜１５則被打開，廢氣則由出風口１４、排氣口２２排出。

由上述可知，本創作之體積甚小，可直接配帶於臉部５３，不會有多餘的部份影響身體或其他部位之活動，而且輕便許多。

尤其，該馬達３４與風扇３５直接設於前罩體３內，其所吸引之空氣可直接進入後罩體１內供使用者５呼吸之用，空氣之行進過程中不會受到太大之阻力，風扇３５之送風效果仍非常良好，所以馬達３４及風扇３５之效率不致損失。

以上所述實施例之揭示係用以說明本創作，並非用以限制本創作，故舉凡數值之變更或等效元件之置換仍應隸屬本創作之範疇。

由以上詳細說明，可使熟知本項技藝者明瞭本創作的確可達成前述目的，實已符合專利法之規定，爰提出新型專利申請。

（請先閱讀背面之注意事項再填寫本頁）
裝 訂 線
經濟部中央標準局員工消費合作社印製
本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）

六、申請專利範圍

1．一種防毒面具之改良結構，包括有：

一後罩體，該後罩體具有一向後之開口，該開口之外側套設有一環狀之密封墊，該密封墊係以軟質橡膠所製造而成，該後罩體之前側面具有一進風口，而該後罩體之底面具有一出風口，該進風口之後側及出風口之底部分別具有一止回瓣；

一電池座，其係設於後罩體之底部，該電池座與後罩體之間形成一排氣空間，該電池座之後側底緣具有排氣口，該電池座具有一容置空間，該容置空間中可放置多數電池，該容置空間之開口處設有一底蓋；

一前罩體，其係固設於後罩體與電池座之前端，該前罩體之前端具有一圓形之固定座，該固定座之前端設有一圓形之過濾體，該過濾體係以一環形之蓋體螺固於固定座，該固定座內具有一透孔，該前罩體後側底緣設有一由電池提供電源之馬達，該馬達之前端連結一風扇，該風扇恰好位於透孔內。

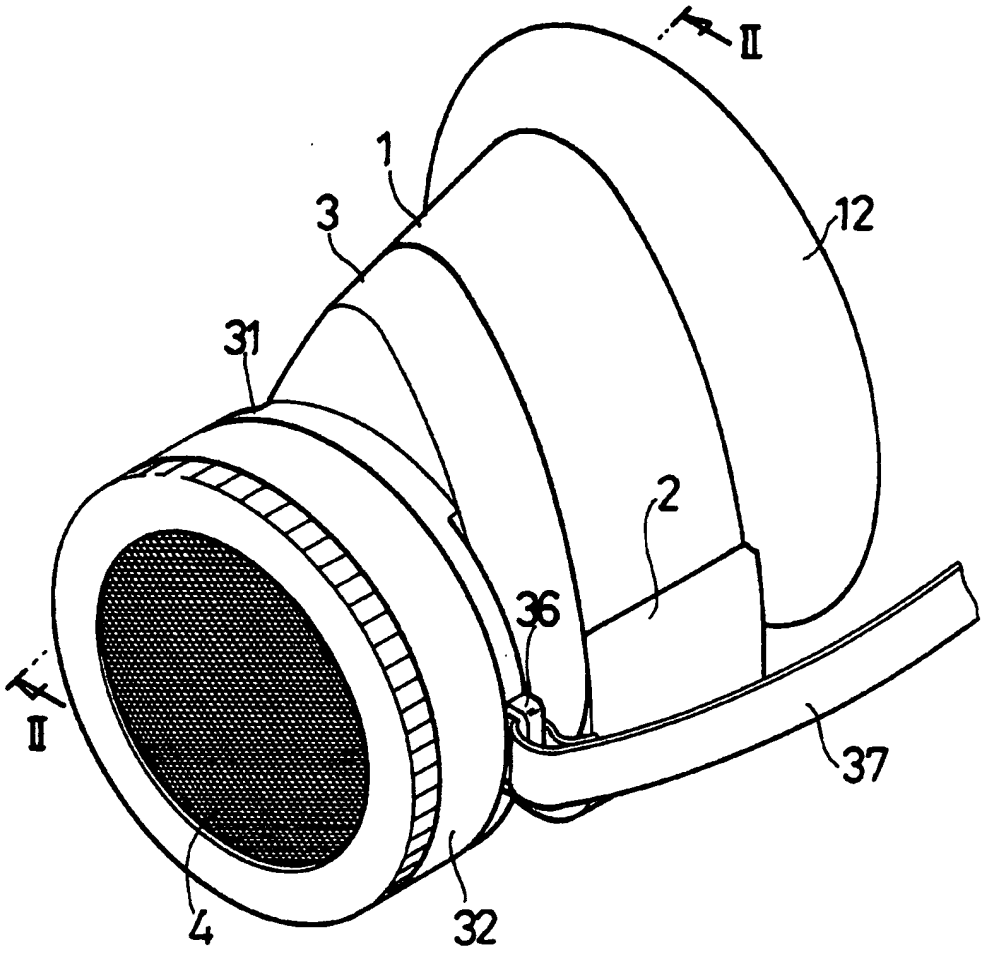
2．依申請專利範圍第1項所述之防毒面具之改良結構，其中，該前罩體之左、右二側分別具有一耳部，該二耳部係用以連結一帶子。

（請先閱讀背面之注意事項再填寫本頁）

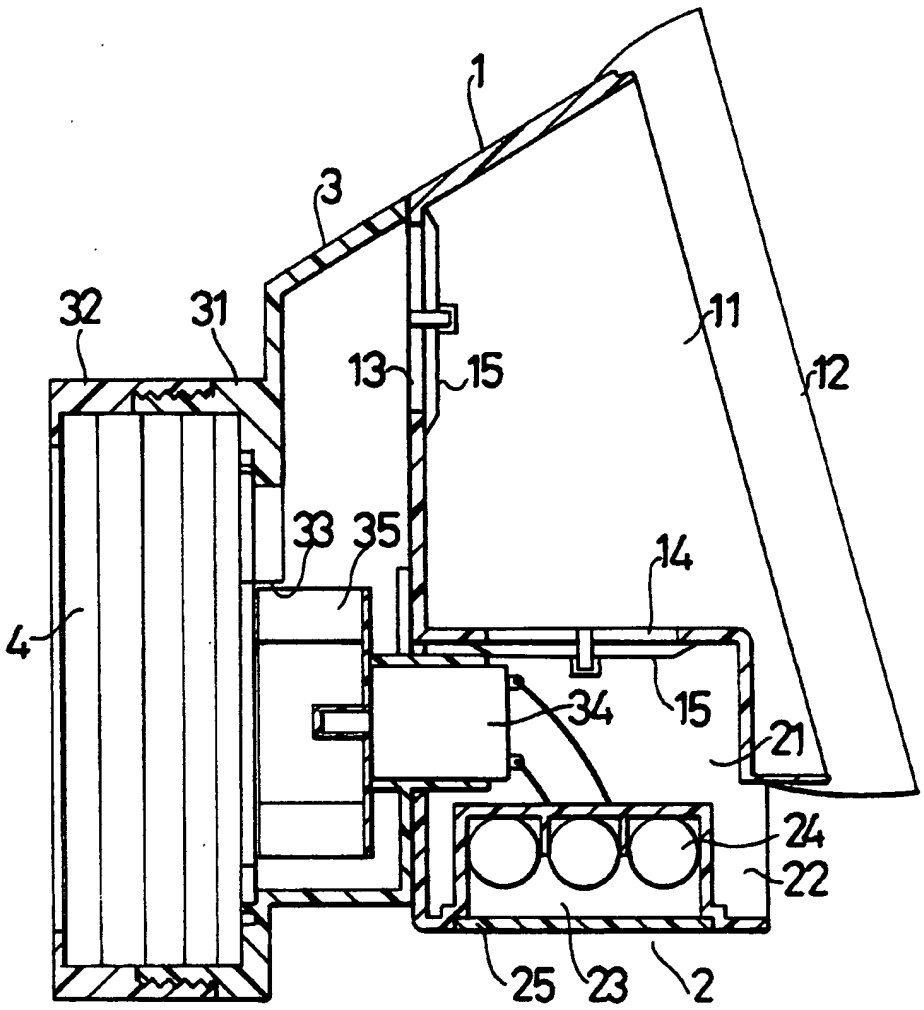
裝 訂

經濟部中央標準局員工消費合作社印製

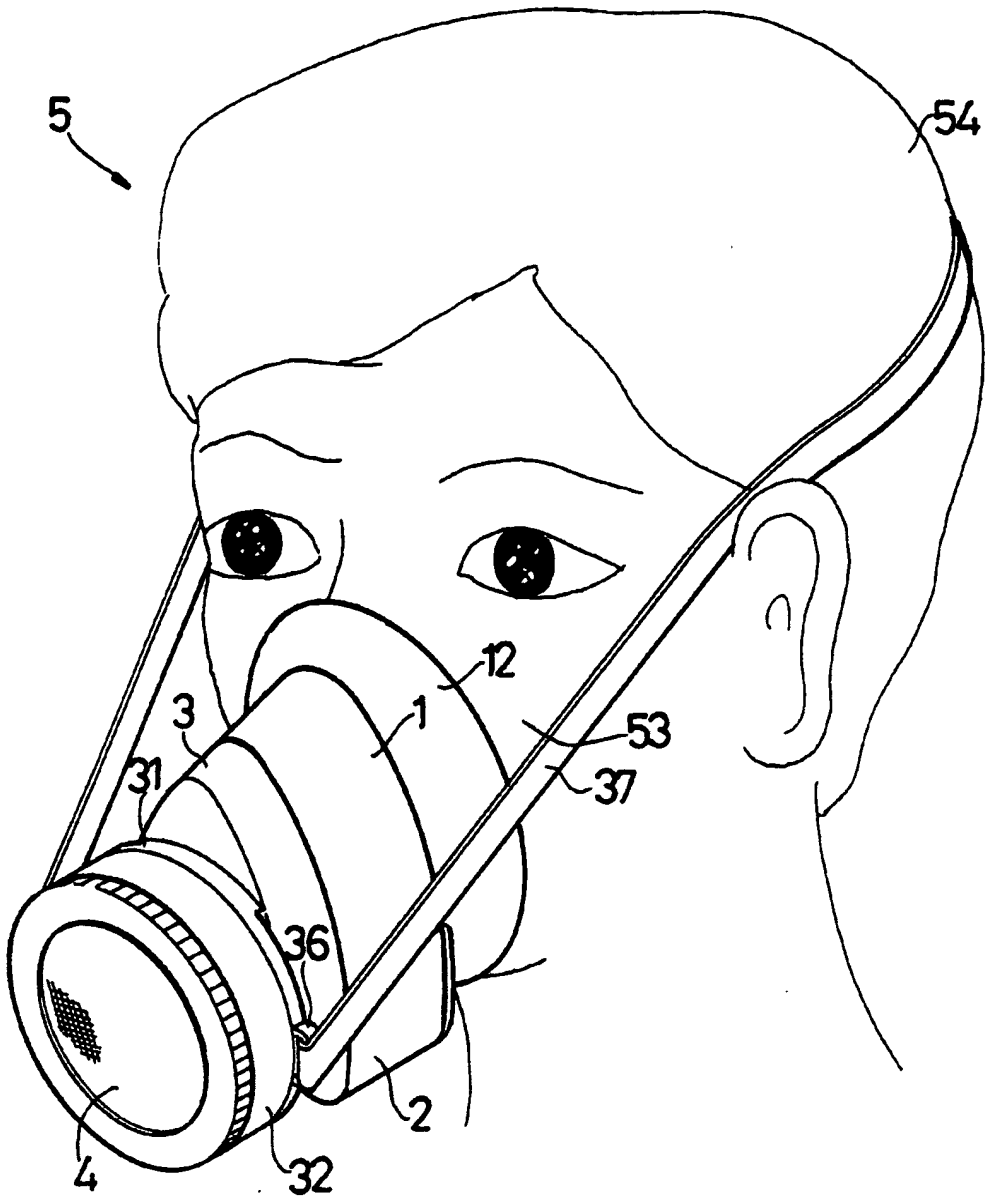
本紙張尺度適用中國國家標準（CNS）A4規格（210×297公釐）



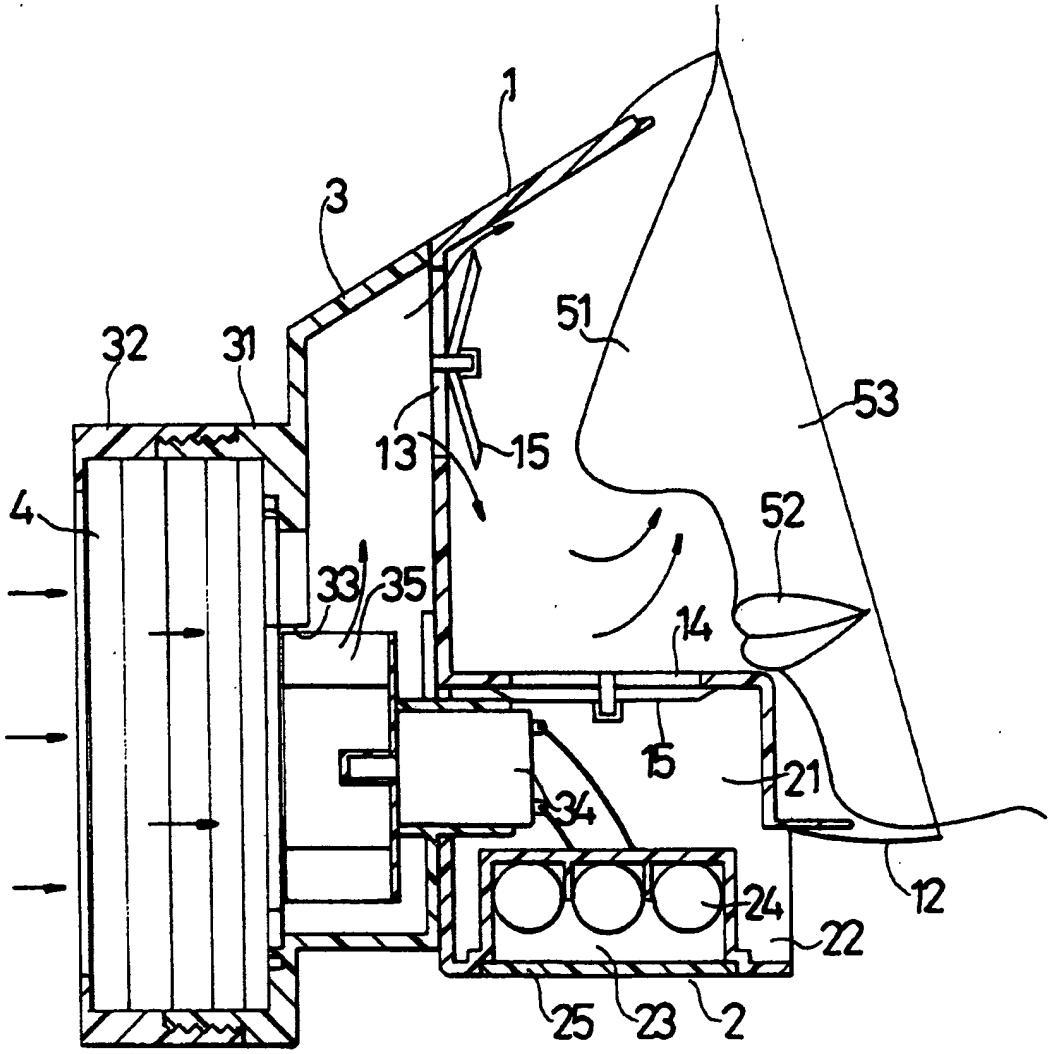
第 1 圖



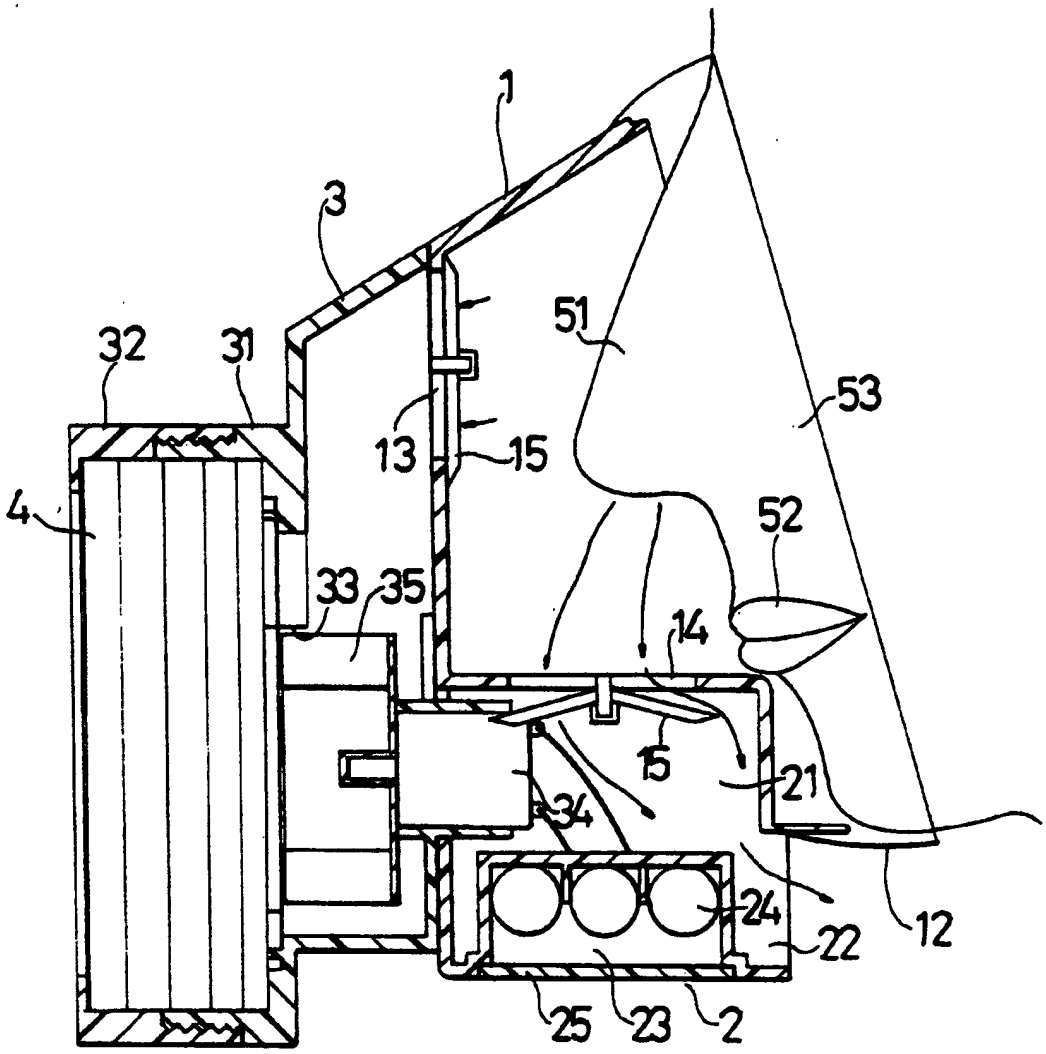
第 2 圖



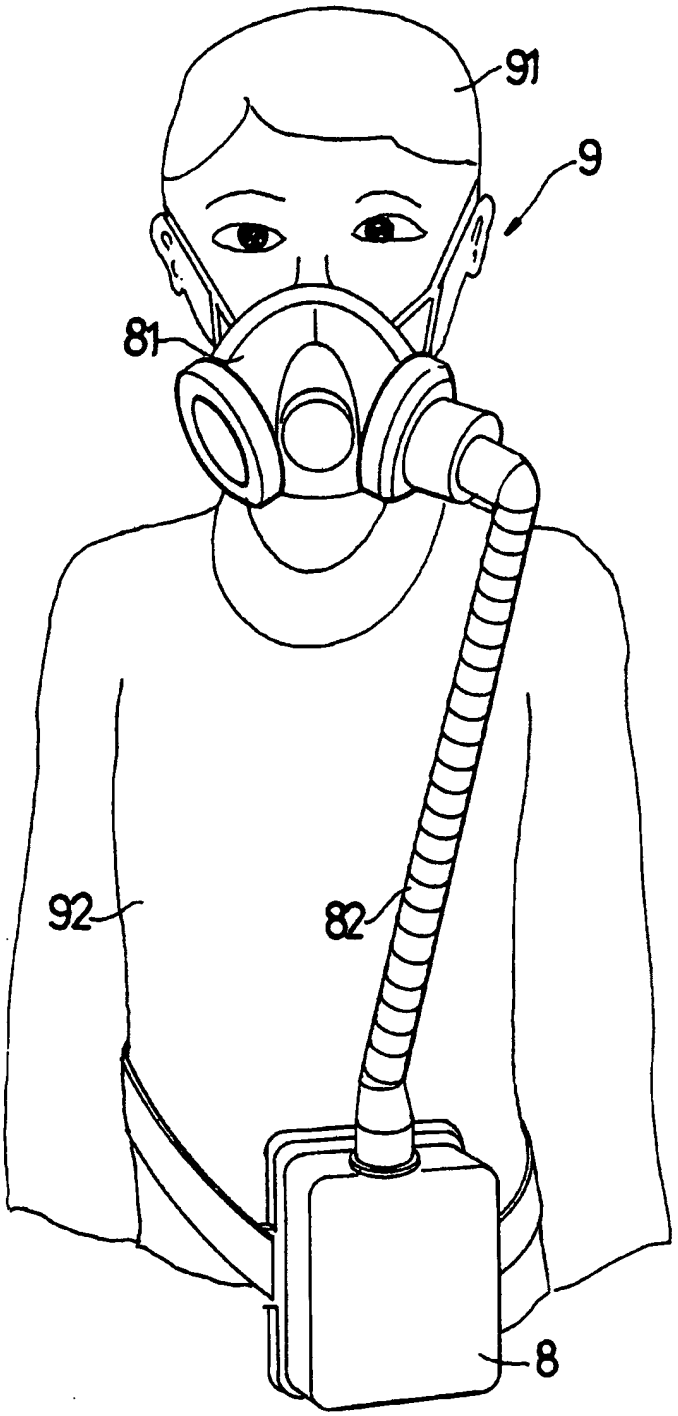
第 3 圖



第 4 圖



第 5 圖



第 6 圖